

**REMARKS**

The Applicants respectfully request that the foregoing amendments be made prior to examination of the present Application.

In the Specification, a Substitute Specification under 37 C.F.R. § 1.125 has been provided to replace the originally filed specification for clarity. No new matter has been added.

Original Claims 1-17 have been amended and are now pending in this Application. New Claims 18-25 have been added to provide claims of varying scope. Claims 1, 18 and 22 are in independent form.

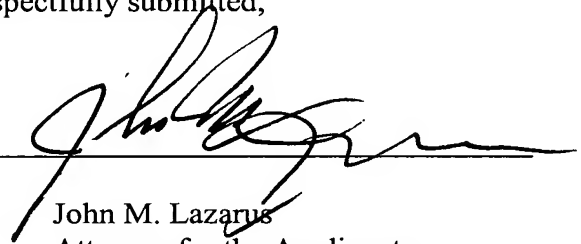
The Applicants believes that the present Application is now in condition for allowance. Favorable consideration of Claims 1-25 is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if the Examiner believes that a telephone interview would advance the prosecution of the present Application.

Respectfully submitted,

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By



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MARKED UP VERSION OF SUBSTITUTE SPECIFICATION

## Sun visor for the interior of a motor vehicle

5                   Cross Reference to Related Applications

[0001]       The present Application claims the benefit of  
priority to the following International Application:  
PCT Patent Application No. PCT/EP03/0523 titled "Sun  
10   Visor For The Interior Of A Motor Vehicle" and filed on  
May 27, 2003, which claims priority to German Patent  
Application No. DE10224835.4 titled "Sun Visor For The  
Interior Of A Motor Vehicle" and filed on June 5, 2002  
(which are incorporated by reference in their  
15   entirety).

DescriptionField

20               [0002]       The invention relates to a sun visor which  
can be opened out in the interior of a motor vehicle  
from a non-used position into anti-glare positions and  
can be pivoted from a first, essentially frontal anti-  
25   glare position into a second, essentially lateral anti-  
glare position.

Prior artBackground

30               [0003]       Patent specification DE 38 29 976 C1  
discloses a sun visor of the generic type. ~~It~~ which  
typically comprises a sun visor body which can be  
35   opened out both downward from a horizontal non-used  
position and from an anti-glare position in front of  
the windshield to a position in front of the side

window of the vehicle by ~~means of~~ an L-shaped bearing bracket mounted rotatably in a pillow block, on the one hand, and in the sun visor body, on the other hand. In such known sun visors, ~~this case, that the~~ flat side of the sun visor body which faces outward in the first frontal anti-glare position faces the vehicle interior in the second, lateral anti-glare position.

[0004] This generally customary design is disadvantageous insofar as fittings, accessories, such as for example mirrors, retaining devices for parking tickets or the like, which are provided on a flat side of the sun visor body are accessible to the occupants only in one anti-glare position, usually the frontal position one.

#### **Object**

#### Summary

[0005] The embodiments of the present invention ~~is~~ are based on the object of providing a sun visor which avoids the abovementioned disadvantages of the prior art.

#### **Achievement**

[0006] The object is achieved according to the ~~invention by the fact that, in the case of a sun visor according to the precharacterizing clause of claim 1,~~ the disclosed embodiments by a sun visor body that is guided by ~~means of~~ a guide device in such a manner that, in each anti-glare position, the same flat side of the sun visor body faces the vehicle interior.

[0007] According to a first ~~preferred embodiment of the invention~~, the sun visor body is guided pivotably

from the first into the second anti-glare position, ~~on the one hand,~~ via a rail guide, which is arranged on the roof lining of the vehicle and, ~~on the other hand,~~ via an articulated arm which is arranged rotatably both  
5 on the roof lining and on the sun visor body. ~~In this case, the~~ The articulated arm ~~advantageously~~ comprises two bent half arms which, when the sun visor is opened out from the non-used position into an anti-glare position, can be rotated in relation to each other  
10 about an essentially horizontal axis. In order to produce a joint, the half arms can have two limbs which can be inserted rotatably one inside the other. Preferably, the first half arm for pivoting the sun visor from the first into the second anti-glare  
15 position is mounted rotatably about a first essentially vertical axis in the roof lining, and the second half arm is mounted rotatably about a second, vertical axis, which is offset parallel to the first axis, in the sun visor body.

20

[0008] In order to retain the sun visor body in the frontal anti-glare position, ~~which experience has shown to be more frequently used,~~ the articulated arm ~~can be designed in a manner such that it~~ can be latched  
25 releasably by ~~means of~~ a latching device to the sun visor body situated in the first, frontal anti-glare position.

[0009] The rail guide ~~advantageously has~~ includes a  
30 guide rail, which is fastened to the roof lining and is arranged horizontally essentially transversely with respect to the direction of travel, and a slider which is fastened to the sun visor body. The slider may be provided with a bent arm piece which, when the sun  
35 visor is pivoted from the first into the second anti-glare position, can be rotated about an axis which is essentially vertical with respect to the guide rail.

The sun visor body can preferably be opened out from the non-used position into an anti-glare position about an essentially horizontal limb of the arm piece. In this case, the arm piece and the articulated arm are  
5 ~~advantageously~~ in operative connection in such a manner that the sun visor body can only be opened out from the non-used position into an anti-glare position if the horizontal limbs of the articulated arm, ~~on the one~~  
hand, and the horizontal limb of the arm piece, ~~on the~~  
10 ~~other hand~~, are aligned with one another.

[0010] By means of a locking device acting in the region of the horizontal limb of the arm piece, the sun visor body can be retained releasably in particular in  
15 its generally approximately horizontal non-used position.

[0011] According to another embodiment ~~advantageous refinement of the invention~~, the sun visor body is  
20 guided pivotably from the first into the second anti-glare position via a pair of articulated arms forming a four bar linkage, with axes of articulation which are essentially vertical with respect to the roof lining. The pair of articulated arms can be mounted on the sun  
visor, in an articulated block, in which the sun visor,  
25 ~~for its part~~, is arranged in a manner such that it can be opened out about an essentially horizontal axis of articulation to pivot it from the non-used position into an anti-glare position, preferably with the use of  
30 a locking device which acts in the region of the horizontal axis and releasably retains the sun visor body in ~~particular in the~~ non-used position.

[0012] The articulated arms of the four bar linkage  
35 are ~~advantageously shown~~ in contact in the first and/or second anti-glare position so as to form an end stop, it being possible between the articulated arms to

provide a latching device which acts in the region of this end stop and retains the sun visor body in the desired anti-glare position. As an alternative, at least one joint of the four bar linkage can be designed such that it can be overstretched in the manner of a toggle lever, overcoming a dead-center position, in order to lock the sun visor body in the first and/or second anti-glare position.

10                    Brief Description of the Figures

[0013]     The figures illustrate schematically different embodiments ~~of the invention~~ by way of example.

15                    In the figures:

Fig. 1    shows a sun visor according to a first embodiment ~~of the invention~~ for the left vehicle occupant in a frontal anti-glare position from the vehicle occupant view.

Fig. 2    shows the sun visor according to Fig. 1 in a top view in various anti-glare positions.

Fig. 3    shows an enlarged detail from Fig. 1 together with an illustration of the latching device. ~~from claim 6~~

Fig. 4    shows an enlarged detail from Fig. 1 with an illustration of the locking device. ~~from claim 11~~

Fig. 5    shows a further sun visor according to ~~the invention~~ another embodiment in a frontal anti-glare position from the vehicle occupant's view.

Fig. 6 shows the sun visor from Fig. 5 in top view in various anti-glare positions.

5 Fig. 7 shows an enlarged detail from Fig. 1 together with an illustration of the locking device.  
~~from claim 14~~

10 Fig. 8 shows a schematic diagram of the design of the four bar linkage from Fig. 5 ~~claim 17~~.

### Detailed Description

[0014] The sun visor 1 which is illustrated in Fig. 15 1 comprises a sun visor body 2 which is connected to the roof lining 4 of a motor vehicle via a guide device 3.

[0015] The guide device 3 ~~firstly~~ comprises, (as is ~~also apparent from shown in Fig. 2)~~, a rail guide 5 with a guide rail 5a which is arranged in a fixed position on the roof lining 4 and extends horizontally and transversely with respect to the direction of travel (Y-axis of the vehicle). A slider 6 is inserted 25 into the guide rail 5a in a longitudinally displaceable manner and, ~~for its part~~, accommodates a bent arm piece 7. The arm piece 7 can be rotated with its first limb 8 about a vertical axis 9 in the slider 6 and with its second limb 10 about a horizontal axis 11 in the sun 30 visor body 2.

[0016] The guide device 3 furthermore comprises an articulated arm 12 which is composed from two bent half arms 13, 14. The first half arm 13 is mounted with one 35 limb 15 in a rotatable manner about a vertical axis of rotation 16 in a small pillow block 17, which is fastened to the roof lining 4 in the vicinity of the

side window of the vehicle, while the second half arm 14 engages with a limb 18 in a rotatable manner about a vertical axis of rotation 19 approximately centrally in the upper edge of the sun visor body 2. The two half arms 13, 14 are ~~furthermore~~ connected to each other rotatably about a horizontal axis of rotation 22 by ~~means of~~ their remaining limbs 20, 21, which can be inserted one inside the other. On its upper edge, the sun visor body 2 has a recess 23 which provides the space necessary for receiving the articulated arm 12.

[0017] ~~If~~ When the horizontal axes of rotation 11 and 22 of the arm piece 7 and of the articulated arm 12 are aligned with each other, the sun visor body can be opened out downward in front of the windshield from an approximately horizontal non-used position, in which it rests, if appropriate, against the roof lining 4, into the frontal anti-glare position (shown as position A). In the process, the half arms 13, 14 rotate in relation to each other about the horizontal axis of rotation 22 and the arm piece 7 rotates about the axis of rotation 11 which is horizontal with respect to the sun visor body 2.

[0018] As is apparent in Fig. 2, the sun visor body can be pivoted from ~~this~~ position A via any desired intermediate positions (for example position C) into a lateral anti-glare position (position B), in which the side window of the vehicle is covered in some regions. In this case, the articulated arm 12 rotates in small pillow blocks 17 and the sun visor body 2 rotates about the vertical axes of rotation 16 and 19. At the same time, the slider 6 is displaced horizontally and transversely with respect to the direction of travel outward toward the side window in the guide rail 5a, the arm piece 7 rotating in the slider 6 about the vertical axis of rotation 9. The visor may be



pivoted~~ing~~ back into the frontal anti-glare position A  
by ~~takes place with~~ a reverse sequence of movement.

[0019] An unintentional pivoting of the sun visor  
5 body into the lateral anti-glare position can be  
avoided by ~~means of~~ the latching device 24, which is  
illustrated on an enlarged scale in Fig. 3. ~~For this~~  
~~purpose,~~ a A projection 25 protrudinges outward  
10 horizontally from the half arm 13 and latches in the  
lateral region of the recess 23 of the sun visor body  
2. Pressing of a button 26 embedded next to it in the  
sun visor body 2 enables the latching connection to be  
released and the sun visor body 2 to be pivoted without  
15 reaching over into the lateral anti-glare position.  
Furthermore, as is apparent from Fig. 4, a locking  
device 27 is provided in the sun visor body 2, said  
locking device having a leaf spring 29 which acts on a  
flattened section 28 of the limb 10 of the arm piece 7  
and ~~by means of which~~ where the sun visor body 2 is  
20 retained releasably in the non-used position.

[0020] In the embodiment illustrated in Figs 5 and  
6, the guide device 3 for the sun visor body 2 is  
~~designed~~ shown as a four bar linkage, with a doubly  
25 bent pair of articulated arms 30, 31 ~~being~~ mounted at a  
distance from each other at one end in the small pillow  
block 17 and at their other end in an articulated block  
32 in a manner such that they can rotate about vertical  
axes of rotation 33 to 36. While the small pillow  
30 block 17 is connected in a fixed position to the roof  
lining 4, the articulated block 32 ~~additionally~~  
accommodates a spindle piece 37 which is embedded into  
the sun visor body 2 and about which the latter can be  
opened ~~out~~ from any desired non-used position into an  
35 anti-glare position. A locking device 27, which acts  
analogously to the previously described device, in the  
articulated block 32 retains the sun visor body 2 in

the non-used position (see Fig. 7).

[0021] The sun visor body 2 ~~is~~ may be retained in the frontal anti-glare position (position A) by ~~the~~ fact that the four bar linkage which is shown overstretched in the manner of a toggle lever beyond a dead-center position 38 into the position illustrated in Fig. 8, with the articulated arms 30, 31 being briefly elastically deformed. In the end position, a virtual straight line X, which connects the axes of rotation 35, 36 in the articulated block 32, is no longer aligned with the rear axis of rotation 34, but encloses an obtuse angle  $\alpha$  together with the associated articulated arm 31. In this case, the bent region of the rear articulated arm 31, which ~~region~~ forms the axis of rotation 36, bears laterally against the other articulated arm 30 and ~~therefore~~ serves as an end stop for the four bar linkage. ~~Of course, in~~ In addition or as an alternative to the toggle lever design, a releasable latching device 39 acting between the articulated arms 30, 31 can be provided ~~there~~.

[0022] The sun visor body 2 ~~may expediently~~ also be retained in the lateral anti-glare position.

**Reference numbers**

- 1 ——— Sun visor
- 2 ——— Sun visor body
- 5 3 ——— Guide device
- 4 ——— Roof lining
- 5 ——— Rail guide
- 5a ——— Guide rail
- 6 ——— Slider
- 10 7 ——— Arm piece
- 8 ——— Limb (of the arm piece 7, vertical)
- 9 ——— Axis of rotation (vertical)
- 10 ——— Limb (of the arm piece 7, horizontal)
- 11 ——— Axis of rotation (horizontal)
- 15 12 ——— Articulated arm
- 13, 14 ——— Half arm
- 15 ——— Limb (of the half arm 13, vertical)
- 16 ——— Axis of rotation (vertical)
- 17 ——— Small pillow block
- 20 18 ——— Limb (of the half arm 14, vertical)
- 19 ——— Axis of rotation (vertical)
- 20, 21 ——— Limb (of the half arms 13, 14, horizontal)
- 22 ——— Axis of rotation (horizontal)
- 23 ——— Recess
- 25 24 ——— Latching device
- 25 ——— Projection
- 26 ——— Button
- 27 ——— Locking device
- 28 ——— Flattened section
- 30 29 ——— Leaf spring
- 30, 31 ——— Articulated arm
- 32 ——— Articulated block
- 33 to 36 ——— Axes of rotation (of the articulated arms,  
vertical)
- 35 37 ——— Spindle piece
- 38 ——— Dead center position
- 39 ——— Latching device

~~Patent-claims~~

What is claimed is:

[The claims are provided in the listing of claims shown  
5 in the preliminary amendment filed herewith]

## Abstract

~~The invention relates to a~~ A sun visor (1) ~~that can be~~  
opened ~~out~~ from a non-used position ~~into~~ an anti-glare  
5 position. ~~Said~~ The visor can be pivoted from a first,  
~~essentially frontal~~ anti-glare position ~~(position A)~~ in  
front of the windscreen ~~into~~ a second, ~~essentially~~  
~~lateral~~ anti-glare position ~~(position B)~~ in front of a  
lateral window of the ~~motor~~ vehicle. The ~~sun~~ visor  
10 body (2) ~~is~~ guided by a guide device (3) ~~in such a way~~  
that in each anti-glare position the same face of ~~said~~  
the body faces ~~towards~~ the vehicle interior. ~~According~~  
~~to a first preferred embodiment, the~~ The sun visor body  
(2) ~~is~~ guided both by means ~~of a~~ guide rail (5) ~~that is~~  
15 mounted on the roof liner (4) ~~of the vehicle and by~~  
~~means of an articulated arm (12) that is rotatably~~  
mounted on the sun visor body for ~~so that it can~~  
pivoting from the first anti-glare position ~~into~~ the  
second. ~~Alternatively, the~~ The sun visor body can also  
20 be hinged ~~so that it can~~ for pivoting from the first  
anti-glare position ~~into~~ the second by means ~~of a~~ pair  
of articulated arms (30), (31), ~~forming a four-bar~~  
mechanism ~~and comprising with~~ substantially vertical  
axes of rotation (33), (34), (35), (36) ~~in relation~~  
25 relative to the roof liner (4).